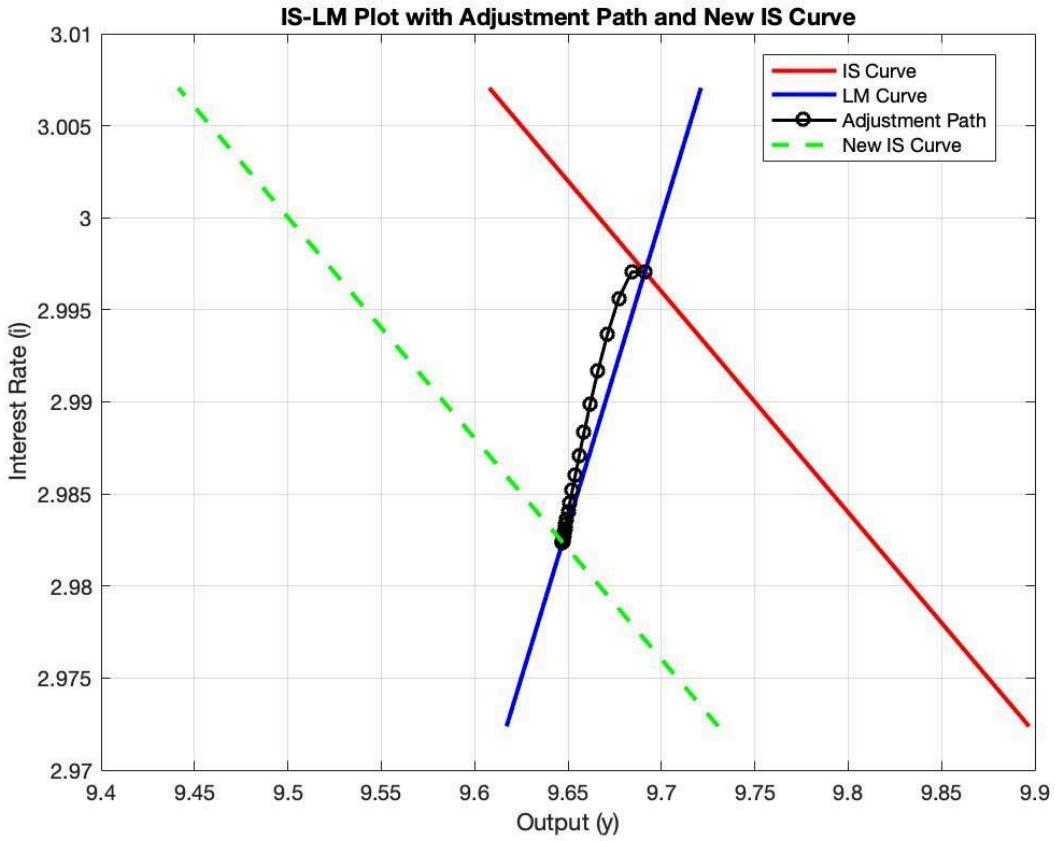
Monetary Policy Homework 1: IS-LM model

Effects of a permanent negative shock to aggregate demand

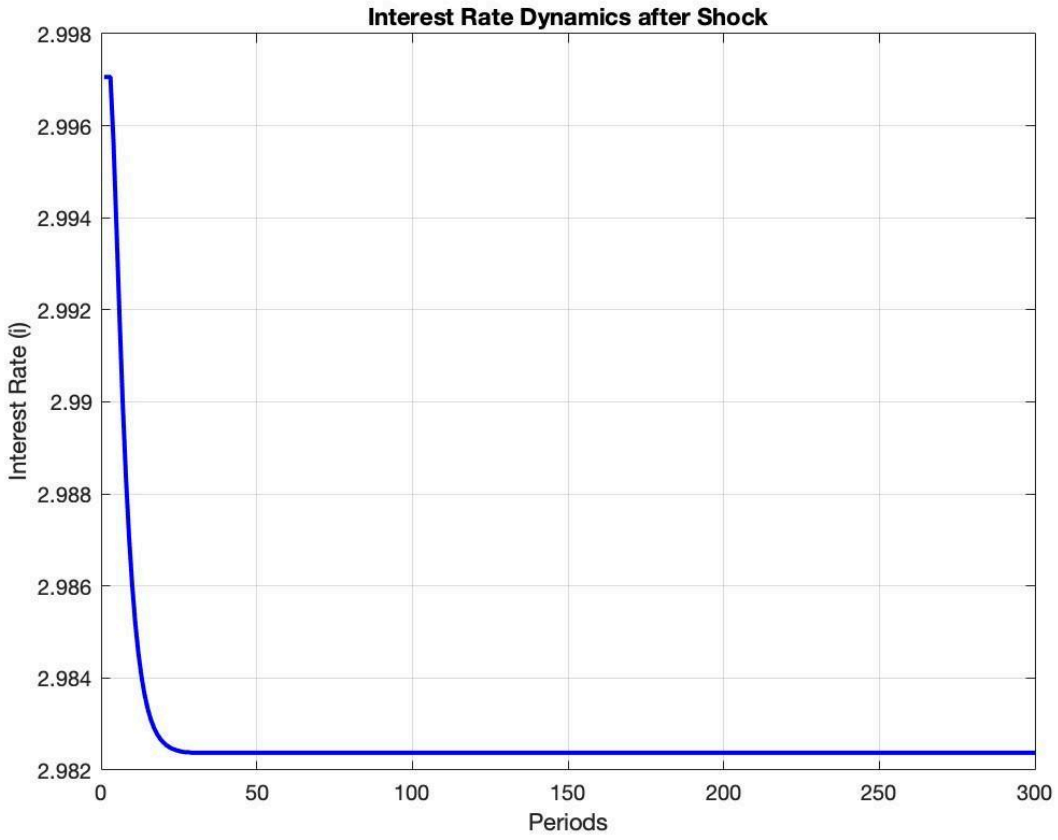


graph 1: effects of a permanent negative shock to aggregate demand on the economy.

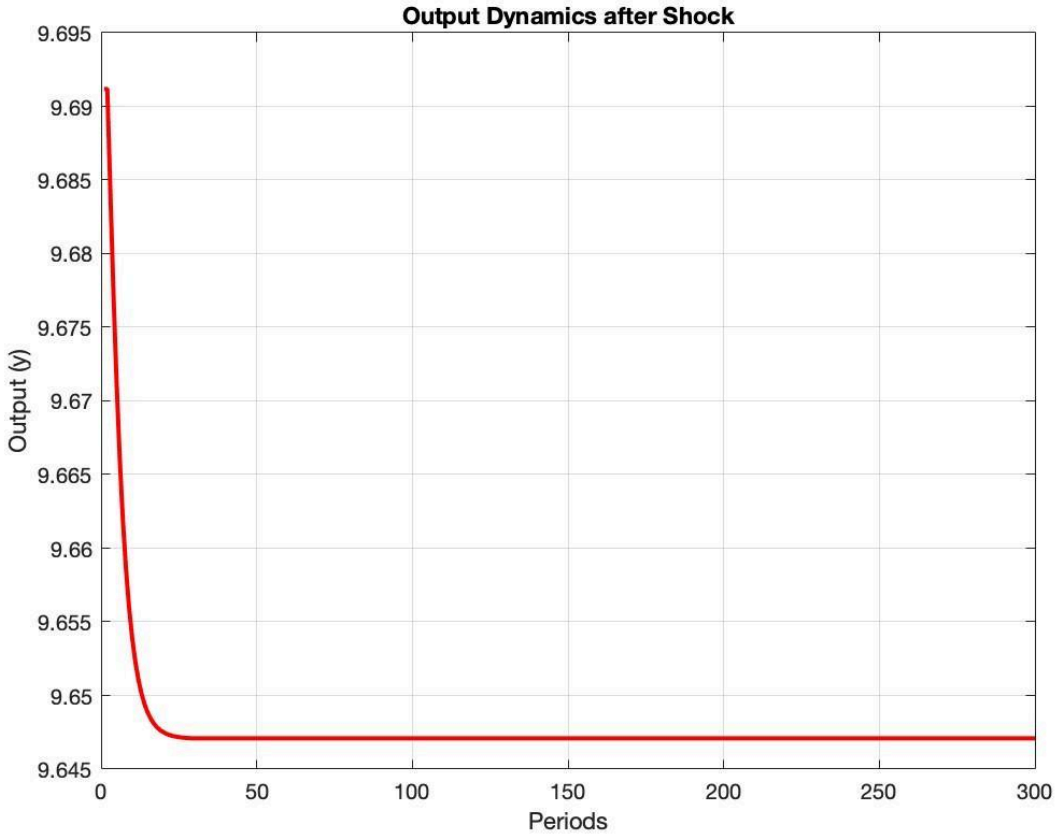
Graphically, the permanent negative shock to aggregate demand determines a parallel shift of the IS curve toward the left. Therefore, after the shock, the economy moves to a new equilibrium with lower output , y, and interest rate, i, represented by the intersection between the LM curve and the new IS curve.
The movement to the new lower equilibrium happens gradually over time. In graph 1 the adjustment process is represented by the interpolated curve going from the original equilibrium to the new one. As it can be seen, at the beginning the change is greater and subsequently it becomes smaller and smaller as the economy approaches the new equilibrium.

Intuitively, the inhibition of consumption expenditure due to the lockdown is a permanent negative shock that reduces the aggregate demand by decreasing the

autonomous spending. The reduction in aggregate demand, in turn, decreases production, since after the negative shock aggregate demand is smaller than output, AD' < y, and, thus, firms decrease production because there is excess supply in the goods market. The reduction in output y affects the demand for money, which decreases, since money demand depends on the level of transactions which, in turn, depends directly on output y. Hence, graphically, there is a leftward shift in the money demand curve in the money market.
Since agents demand less money and, hence, increase their demand for securities, there is an excess supply of money and an excess demand for securities. Consequently, the price of securities increases and the interest rate decreases to the new lower equilibrium level. Eventually, the money and securities markets and the goods market reach their new equilibriums and thus the economy reaches the new equilibrium which is characterized by lower output and interest rate.



graph 2: impulse response function showing the adjustment of the interest rate after the permanent negative shock.



graph 3: impulse response function showing the response of output to the permanent negative demand shock.

As the impulse response functions show, after the shock, both the interest rate i and the output y gradually decrease and reach the new equilibrium level after approximately 25 periods.